

**REMARKS**

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-31 remain in the application and claims 7, 19, 25, 27, 29 and 31 are independent.

The Office Action dated October 29, 2008 has been received and carefully reviewed. Each issue raised in the Office Action is addressed herein. Favorable reconsideration and allowance are respectfully requested in view of the following remarks.

**Information Disclosure Statements**

Applicants thank the Examiner for considering some of the references supplied with the Information Disclosure Statement filed along with the application and the second IDS filed December 26, 2006, filed responsive to the European Search Report dated October 27, 2006. A number of the references cited therein appear to have been lined out as if they were not considered. Applicants believe that the references cited therein were in compliance with all of the requirements of 37 C.F.R. § 1.97 and 1.98 and therefore again request that the Examiner either consider the remaining references and return the appropriately marked SB 08 forms with the next Office Action, or indicate the basis for any refusal to consider the references so that Applicants may respond appropriately.

**Allowable Subject Matter**

Applicants appreciate the Examiner's indication that claims 25-28 are allowed and claims 9-18 and 20-24 indicated as containing allowable subject matter.

**Claim Rejections – 35 U.S.C. § 112, Second Paragraph**

Claims 1-18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the phrase "rail vehicle guided along a running route without contact with a guide rail" is indefinite and contradictory. Accordingly, claim 7 has been amended to change the term "rail vehicle" to just "vehicle" so as to avoid any possible confusion, in accord with the suggestion provided by Examiner McCarry in a brief telephone conversation on November 17, 2008.

Applicants and Applicants' representative Mr. Paul T. Sewell appreciate the courtesies extended during the brief conversation. Should the Examiner prefer any additional changes, he is invited to contact Applicants' representative at the telephone number listed at the end of this reply. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

*Claim Rejections – 35 U.S.C. § 102(b)*

Claims 1-8 and 19 stand rejected under 35 U.S.C. §102(b) as allegedly unpatentable over Sadano. Applicants submit that the Examiner has failed to establish a *prima facie* case of anticipation and respectfully traverse the rejection. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

In order to establish a *prima facie* case of anticipation under 35 U.S.C. § 102, the cited reference must teach or inherently include each and every element of the claims. See *M.P.E.P. § 2131; M.P.E.P. § 706.02*.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 7 has been amended to recite a combination of elements in a vehicle control, *inter alia*, including that the control section generates a provisional steering angle based on a current target deviation from a running route at a current position of said vehicle, a current actual deviation from said running route at said current position of said vehicle, and a current target steering angle at said current position of said vehicle, and wherein said control section comprises: an optimization calculating section configured to convert said provisional target steering angle to a target control steering angle by adding a correction steering angle based on a steering angle prediction correction to minimize vibration of said vehicle resulting from a steering of said vehicle, and said drive section mechanically steers said cart based on said target control steering angle. Applicants respectfully submit that this combination of elements as set forth in independent claim 7 is not disclosed or made obvious by the prior art of record, including Sadano.

The Examiner states that Sadano shows a cart (the vehicle) having a body and wheels and a steering control system comprised of control unit 10 and camera controller 26, which are

comprised of a control system and drive section as seen in Figures 1B, 2 and 3. According to the Examiner the control unit calculates the yaw, among other things and calculates a target steering angle. Sadano does appear to calculate a target steering angle in step S2 in Figure 2 based upon the yaw angle  $\Phi$ , the side deviation  $y$  and the road curvature  $p$ . Applicants respectfully submit that to the contrary, as now amended, the instant claim 7 requires converting the provisional target steering angle to a target control steering angle by adding a correction angle based upon a steering angle prediction correction. Sadano neither shows nor suggests the addition of a correction angle to a provisional target steering angle based on a steering angle prediction correction. Applicants respectfully submit that the combination of elements as set forth in independent claim 7 is not disclosed or made obvious by the prior art of record, including Sadano, for the reasons explained above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

With regard to dependent claims 1-6 and 8, Applicants submit that claims 1-6 and 8 depend, either directly or indirectly, from independent claim 7 which is allowable for the reasons set forth above, and therefore claims 1-6 and 8 are allowable based on their dependence from claim 7. Reconsideration and allowance thereof are respectfully requested.

With respect to claim 19, the rejection states that “The steering assembly controlled by the control unit 10 and motor 16 is further comprised of a drive gear 15 and a drive gear 14 mounted on the steering shaft 5. The gears are controlled by a clutch 17 with the clutch being controlled by the motor 16.” See page 3 of the Office Action, at the end of the long paragraph. While Applicants do not dispute this characterization, the rejection fails to address a number of additional claimed features which include:

a screw axis connected with an output axis of said motor;  
bearings configured to support said screw axis;  
a nut screwed with said screw axis;  
a first support configured to support said nut;  
a second support configured to support said bearings; and  
a link mechanism configured to steer said wheels, and  
either of said first support and said second support constitutes a fixation  
side support fixed to said cart, and either of said first support and said second

support constitutes a movable side support connected with said link mechanism.

As was noted above, anticipation under 35 U.S.C. § 102(b) requires each and every claimed element to be present in the reference, and not that it might be there or it might be obvious to add it. Here, it is submitted that the claimed drive section that mechanically steers the cart based upon the target control steering angle includes all of these features, none of which are shown. A careful review of Sadano fails to reveal, *inter alia*, a screw axis connected with an output axis of the motor, bearings, a nut screwed with the screw axis, a first support configured to support the nut, a second support the bearings, and either the first or second support constitutes a fixation side support and a movable side support connected with the link mechanism. Since these features do not appear in the reference it is submitted that claim 19 is not anticipated and Applicants respectfully request the claim be reconsidered and allowed.

**Claim Rejections – 35 U.S.C. § 103**

Claims 29-31 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Sadano. Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the cited references must teach or suggest each and every element in the claims. *See M.P.E.P. § 706.02(j); M.P.E.P. 2141-2144.*

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 29 has been amended to recite a combination of steps in a vehicle control including, *inter alia*, setting of a 1-dimensional coordinate data of a target route, the 1-dimensional coordinate data comprising a sequence of position data of the target route; and setting of a target steering angle corresponding only to said 1-dimensional coordinate data [X<sub>j</sub>]. As was discussed in greater detail above, Sadano calculates a target steering angle based upon three measured variables: the yaw angle, the side deviation and the road curvature, not based upon only the 1-dimensional coordinate data comprising a sequence of position data of the target route as in the

instant invention.

The rejection indicates that because the reference discloses “the steering system as described above” one of ordinary skill would have expected the device “to operate by the same method.” This claim is directed to specific claimed method steps that are neither shown nor suggested by the structure of Sadano. Since Sadano does not set 1-dimensional coordinate data comprising a sequence of position data of the target route, and therefore does not set a target steering angle corresponding only to the 1-dimensional coordinate data, it does not show or suggest the specific method steps as now claimed. Applicants respectfully submit that this combination of elements as set forth in independent claim 29 is not disclosed or made obvious by the prior art of record, including Sadano.

Likewise, while not conceding the appropriateness of the Examiner’s rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 31 has been amended to recite a combination of steps in a steering method that includes specific vehicle structural features. That is, the vehicle includes:

a drive section comprising a motor,  
a ball screw axis connected with an output axis of said motor, and a nut connected with the ball screw axis,  
a clutch interposed between said motor and said ball screw axis, and  
a link mechanism connected with said wheels and configured to operate a rotation of the output axis of said motor,

and the steering method includes:

detecting a contact between a part of said vehicle with a road surface side structure; and  
disengaging said clutch interposed therebetween in response to the contact.

Comments made above with respect to claim 19 are incorporated herein. Sadano does not show or suggest these claimed specific vehicle features: a ball screw axis connected with an output axis of said motor, and a nut connected with the ball screw axis, a clutch interposed between said

motor and said ball screw axis, and a link mechanism connected with said wheels and configured to operate a rotation of the output axis of said motor, and therefore cannot disengage the clutch interposed between said motor and said ball screw axis in the manner now claimed. Applicants respectfully submit that this combination of elements as set forth in independent claim 31 is not disclosed or made obvious by the prior art of record, including Sadano.

Conclusion

All objections and rejections raised in the Office Action having been properly traversed and addressed, it is respectfully submitted that the present application is in condition for allowance. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Notice of same is earnestly solicited.

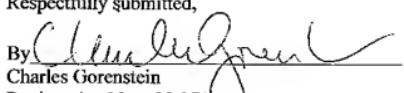
Prompt and favorable consideration of this Amendment is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Paul T. Sewell, Registration No. 61,784, at (703) 205-8000, in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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